



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/628,653	07/28/2003	Sai P. Katikaneni	B429-060	4416

26278 7590 04/11/2005

COWAN LIEBOWITZ & LATMAN, P.C
JOHN J TORRENTE
1133 AVENUE OF THE AMERICAS
NEW YORK, NY 10036

EXAMINER

LAWRENCE JR, FRANK M

ART UNIT	PAPER NUMBER
----------	--------------

1724

DATE MAILED: 04/11/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/628,653

Applicant(s)

KATIKANENI ET AL.

Examiner

Frank M. Lawrence

Art Unit

1724

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 February 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-39 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9, 11-14, 19-28 and 30-39 is/are rejected.
- 7) ☒ Claim(s) 10, 15-18 and 29 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date (2).
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of Group I, claims 1-30 in the reply filed on February 28, 2005 is acknowledged. The traversal is on the ground(s) that the apparatus and method claims recite substantially alike features and are not patentable over each other. This IS found persuasive and the examiner WITHDRAWS the previous restriction requirement and has rejoined, considered and examined all of the claims (1-39) in this action.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-3, 19-22, 30-33 and 35-37 are rejected under 35 U.S.C. 102(b) as being anticipated by Gringrich et al. (6,074,459).

4. Gringrich et al. '459 teach a system for removing sulfur compounds from a gas stream such as natural gas, methane or hydrogen, comprising a container (2) with a first adsorbent bed, a second adsorbent bed (10) including a zeolite for removing hydrogen sulfide and mercaptans from the gas, and a third adsorbent bed (12) including a zeolite for removing sulfur containing compounds with C=S and C-S-C functionalities (see figure, col. 2, lines 21-40, col. 3, lines 17-46).

Art Unit: 1724

5. Claims 1-3, 11-14, 19-22, 25, 26, 30-33 and 35-37 are rejected under 35 U.S.C. 102(e) as being anticipated by Chow et al. (2003/0113598 A1).

6. Chow et al. '598 teach a system for removing sulfur compounds from a hydrocarbon fuel stream, comprising a container (4) with a first adsorbent bed (6) that can be a zeolite adsorbent for removing hydrogen sulfide and primary sulfur compounds such as higher molecular weight organic sulfur compounds from the stream, a second adsorbent bed (8) including a supported nickel or copper adsorbent for removing secondary sulfur compounds such as DMS from the stream, and a third adsorbent bed (10) that can include activated carbon or a zeolite for removing both primary and secondary sulfur compounds. Two of the containers can be used in series or in parallel for continuous use of one bed while the other is being regenerated or replaced, and adsorption can take place at 150-750° C (see figure, abstract, paragraphs 40-51). A parallel arrangement will necessarily require conduits and valves to control gas flow.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 4-9, 23, 24, 27, 28, 34, 38 and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chow et al. '598 in view of Hanamoto et al. (5,948,398).

9. Chow et al. '598 discloses all of the limitations of the claims except that the first adsorbent comprises copper-chromium based activated carbon with at least 5 wt% Cu and at least 2 wt% Cr and that the process has preferred bed sizes, pressures and flow rates. Hanamoto

Art Unit: 1724

et al. '398 disclose an activated carbon carrying 0.1-20 wt% of at least one metal including copper and chromium that is useful for adsorbing mercaptans (abstract, col. 1, lines 44-67). It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the system of Chow et al. '598 by using a copper-chromium based activated carbon in place of the first adsorbent in order to provide an adsorbent that causes little pressure loss and is capable of sufficiently removing mercaptans in low concentrations. Absent a proper showing of criticality or unexpected results, the process sizes, flow rates, and pressures are considered to be parameters that would have been routinely optimized by one having ordinary skill in the art at the time of the invention in order to achieve a high rate of adsorption at the lowest relative cost of energy and materials.

Allowable Subject Matter

10. Claims 10, 15-18 and 29 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The additional references listed on the attached PTO-892 form disclose desulfurization processes.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Frank M. Lawrence whose telephone number is 571-272-1161. The examiner can normally be reached on Mon-Thurs 7:30-6:00.

Art Unit: 1724

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duane Smith can be reached on 571-272-1166. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Frank M. Lawrence
Primary Examiner
Art Unit 1724

Frank Lawrence

4-7-05

fl